WHAT IS CLAIMED IS:

1. A fault tolerant network, comprising:

an ingress access node operable to receive an optical signal from a network element external to the fault tolerant network; and

a fault tolerant node operable to receive the optical signal from the ingress access node and to perform a switching operation on the optical signal depending on a voltage applied to an optical switching element within the fault tolerant node, wherein the fault tolerant node allows transmission of the optical signal when no voltage is applied to the optical switching element.

2. The fault tolerant network of Claim 1, wherein the ingress access node is further operable to receive an electronic signal from a network element external to the fault tolerant network, and to convert the electrical signal to an optical signal.

3. The fault tolerant network of Claim 1, wherein the optical switch elements comprises

a fixed layer disposed outwardly from a substrate; and

a unitary moveable mirror structure disposed outwardly from the fixed layer and forming with the fixed layer a cavity, the moveable mirror structure operable to move relative to the fixed layer in response to a voltage applied to the moveable mirror structure to affect a change in a characteristic of the optical switch element.

4. The fault tolerant network of Claim 3, wherein the optical switch element is operable to change between a substantially transmissive state and a less than

substantially transmissive state in response to the applied voltage.

5. The fault tolerant network of Claim 3, wherein the optical switch element is operable to change between a substantially reflective state and a less than substantially reflective state in response to the applied voltage.

6. The fault tolerant network of Claim 3, wherein the optical switch element is capable of moving relative to the fixed layer within 30 microseconds in response to the applied voltage.

7. An optical processing device comprising:

a demultiplexer operable to receive a multiple wavelength optical signal and to select at least one of the optical signal wavelengths;

a plurality of lenses each having a central axis and each capable of receiving at least a portion of the at least one selected optical signal wavelength;

at least one optical switching element disposed between a first lens and a second lens of the plurality of lenses, wherein the at least one optical switching element comprises:

a fixed layer disposed outwardly from a substrate; and

a unitary moveable mirror structure disposed outwardly from the fixed layer and forming with the fixed layer a cavity, the unitary moveable mirror structure operable to move relative to the fixed layer in response to a voltage applied to the unitary moveable mirror structure to affect a change in a characteristic of the optical switching element; and

wherein the at least one optical switching element is operable to receive the portion of the at least one selected optical signal wavelength from the first lens of the plurality of lenses and to reflect the portion of the at least one selected optical signal wavelength to the second lens of the plurality of lenses depending on the position of the unitary moveable mirror structure relative to the fixed layer.

8. The optical processing device of Claim 7, wherein the at least one optical switching element comprises an array of optical switch components; and

wherein at least one of the array of optical switching components is at least partially offset from

the central axis of one or more of the plurality of lenses.

9. The optical processing device of Claim 7, wherein the substrate is a semiconductor substrate that includes a material selected from the group consisting of silicon and indium phosphide.

10. The optical processing device of Claim 7, wherein each lens of the plurality of lenses comprises a collimating lens capable of shaping a beam of light corresponding to the at least one selected optical signal wavelength.

11. The optical processing device of Claim 7, wherein the at least one optical switching element is spaced from each of the plurality of lenses by approximately a focal length of the respective lens.

12. The optical processing device of Claim 7, wherein the optical switch element is capable of moving relative to the fixed layer within 30 microseconds in response to the applied voltage.

13. The optical processing device of Claim 7, wherein the change in the characteristic of the optical switching element provides a function selected from the group consisting of a binary optical switching function, a variable optical attenuator function, and a modulation function.

14. The optical processing device of Claim 7, wherein the motion of the unitary moveable mirror structure is approximately parallel to the fixed layer.

15. The optical processing device of Claim 7, further comprising an optical tap operable to receive the multiple wavelength optical signal and to separate the multiple wavelength optical signal into a first signal portion and a second signal portion.

16. The optical processing device of Claim 7, wherein the voltage applied to the moveable mirror structure is generated by an electronic processor.

17. The optical processing device of Claim 16, wherein the electronic processor comprises a plurality of controllers, each controller operable to control at least one of the optical switching elements.

18. A method of communication optical signals, comprising:

selecting at least one of a plurality of optical signal wavelengths;

receiving at least a portion of the at least one selected optical signal wavelength at a first lens of a plurality of lenses;

receiving the portion of the at least one selected optical signal wavelength at an optical switching element comprising a fixed layer and a unitary moveable mirror structure disposed outwardly from the fixed layer, the fixed layer and the unitary moveable mirror layer forming a cavity;

applying a voltage to the optical switching element to change the position of the unitary moveable mirror structure relative to the fixed layer and cause a change in a characteristic of the optical switching element; and

wherein the at least one optical switching element is operable to reflect the portion of the at least one selected optical signal wavelength to a second lens of the plurality of lenses depending on the position of the unitary moveable mirror structure relative to the fixed layer.

19. The method of Claim 18, wherein each of the first lens and the second lens has a central axis

20. The method of Claim 18, wherein each of the first and second lenses comprises a collimating lens capable of shaping a beam of light corresponding to the at least one selected optical signal wavelength.

21. The method of Claim 18, wherein the optical switching element is spaced from each of the first lens

and the second lens by approximately a focal length of the respective lens.

22. The method of Claim 18, wherein the optical switch element is capable of moving relative to the fixed layer within 30 microseconds in response to the applied voltage.

23. The method of Claim 18, wherein the change in the characteristic of the optical switching element provides a function selected from the group consisting of a binary optical switching function, a variable optical attenuator function, and a modulation function.

24. The method of Claim 18, further comprising:

receiving an input signal comprising the plurality of optical signal wavelengths at an optical tap; and

separating the input signal into a first signal portion and a second signal portion.

25. The method of Claim 18, wherein the unitary moveable mirror structure is approximately parallel to the fixed layer after the change in position of the unitary moveable mirror structure.

26. A method of communication optical signals, comprising:

selecting at least one of a plurality of optical signal wavelengths;

receiving at least a portion of the at least one selected optical signal wavelength at a first lens of a plurality of lenses;

receiving the portion of the at least one selected optical signal wavelength at an optical switching element comprising a fixed layer and a unitary moveable mirror structure disposed outwardly from the fixed layer, the fixed layer and the unitary moveable mirror layer forming a cavity;

applying a voltage to the optical switching element to change the position of the unitary moveable mirror structure relative to the fixed layer and cause a change in a characteristic of the optical switching element; and

wherein the at least one optical switching element is operable to communicate the portion of the at least one selected optical signal wavelength to a second lens of the plurality of lenses when the unitary moveable mirror structure is in a first position relative to the fixed layer, and wherein the second lens does not receive the portion of the at least one selected optical signal wavelength when the unitary moveable mirror structure is in a second position relative to the fixed layer.

27. An optical processing device comprising:

a demultiplexer operable to receive a multiple wavelength optical signal and to select at least one of the optical signal wavelengths;

a first lens of a plurality of lenses, the first lens operable to receive at least a portion of the at least one selected optical signal wavelength;

at least one optical switching element disposed between the first lens and a second lens of the plurality of lenses, the at least one optical switching element operable to receive the portion of the at least one selected optical signal wavelength from the first lens, wherein the at least one optical switching element comprises:

a fixed layer disposed outwardly from a substrate; and

a unitary moveable mirror structure disposed outwardly from the fixed layer and forming with the fixed layer a cavity, the unitary moveable mirror structure operable to move relative to the fixed layer in response to a voltage applied to the unitary moveable mirror structure to affect a change in a characteristic of the optical switching element; and

wherein the at least one optical switching element is operable to communicate the portion of the at least one selected optical signal wavelength to the second lens of the plurality of lenses when the unitary moveable mirror structure is in a first position relative to the fixed layer, and wherein the second lens does not receive the portion of the at least one selected optical signal wavelength when the unitary moveable mirror structure is in a second position relative to the fixed layer.